

## User's Manual



## *P/2 DA8 and P/2 DA12 Series* VGA Distribution Amplifiers

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présents dans la documentation utilisateur.

**Éviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precación

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones maradas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

## Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquées sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Achémener les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

## Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegen gestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder anderer Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Lithium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la conectada de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario debe acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

## 安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

### 注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

### 警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

## 声明

所使用电源为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。

### FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

#### **NOTE**

*This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.*

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## P/2 DA8 and P/2 DA12 Series

# 1 Chapter One

## Introduction

About this Manual

Description of P/2 DA8 and P2 DA12 Series

Features of P/2 DA8 and P2 DA12 Series

# Introduction

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## About This Manual

This manual contains information about the Extron P/2 DA8, P/2 DA8 A, P/2 DA12 and P/2 DA12 A distribution amplifiers with instructions on how to mount, install, and operate these units.

Unless otherwise specified, references to "the distribution amplifier" in this manual relate to the features or operation of all four of these models.

## Description of P/2 DA8 and P/2 DA12 Series

The Extron P/2 DA8 and P/2 DA12 series are a family of high performance VGA-QXGA distribution amplifiers, available with or without audio.

All models accept a single video input signal, which may be RGBHV, RGBS, RGsB, RsGsBs, HDTV component (tri-level and bi-level sync), S-video, or composite video. They are compatible with resolutions from VGA (640 x 480) to QXGA (2048 x 1536).

The signal is distributed to eight (P/2 DA8 series) or twelve (P/2 DA12 series) outputs, without modifying the signal: the output video signal format follows the input format.

An XGA signal can be extended up to 150' over Extron mini high resolution (MHR) cable.

The audio versions (P/2 DA8 A and P/2 DA12 A) also accept a single, unbalanced audio signal and distribute it to eight or twelve, balanced or unbalanced, audio outputs.



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## Features of P/2 DA8 and P/2 DA12 Series

**Bandwidth** — 350 MHz (-3dB) RGB video bandwidth, fully loaded, which is compatible with resolutions from VGA to QXGA.

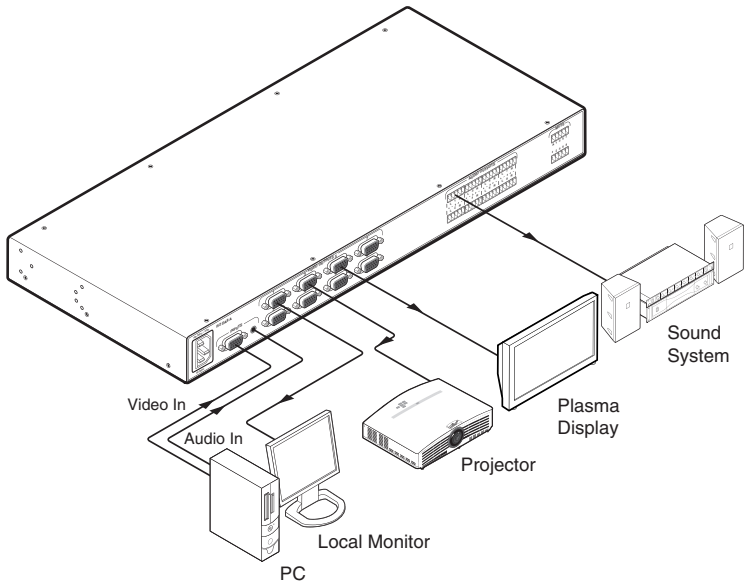
**Wide range of compatible signal types and resolutions** — all models are able to accept and distribute RGBHV, RGBS, RGsB, RsGsBs, YUV (tri-level and bi-level sync), S-video and composite video signals.

**Power LED** — located on front panel. It has a dual purpose as power indicator and input signal status.

**Sync Impedance DIP Switches** — for solving laptop compatibility issues, and reflection problems caused by long cable runs.

**Output Mute** — allows video and audio outputs from specific channels or all channels to be muted.

**Active Audio Buffering** — distributes and actively buffers audio outputs in a balanced or unbalanced operation.



**Figure 1-1 — A typical application for the P/2 DA8 A**





## P/2 DA8 and P/2 DA12 Series

# 2 Chapter Two

## Installation and Operation

Installation Overview

Mounting the Distribution Amplifier

Front Panel Features

Rear Panel Features

Operation

Troubleshooting

# Installation and Operation

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## Installation Overview

The distribution amplifiers can be mounted on tabletops, in racks and under furniture. Through-desk mounting is not recommended for these products. To install these units, follow these steps:

1. Turn off all electrical equipment. Make sure that the input sources, the distribution amplifier, and the output displays are all turned off, disconnected from their power sources, and connecting cables have been removed.
2. Mount the unit (see "Mounting the Distribution Amplifier" below).
3. Connect the Cables (see "Operation" on pages **2-8 to 2-12**).
4. Plug in the power supply and turn on the display devices and input devices.

## Mounting the Distribution Amplifier

The 1 U, full rack size of these distribution amplifiers allows them to be mounted on a tabletop, on racks, or under furniture.

### Tabletop placement

Attach the four included rubber feet to the bottom of the unit and place it in any convenient location.

### Rack Mounting

#### UL requirements for rack mounting

The following Underwriters Laboratories (UL) concerns are relevant to the safe installation of these distribution amplifiers in a rack:

1. **Elevated operating ambient temperature** — If the unit is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature ( $T_{ma}$ : +122 °F, +50 °C) specified by Extron.
2. **Reduced air flow** — Install the equipment in the rack so that the equipment gets adequate air flow for safe operation.
3. **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
4. **Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit

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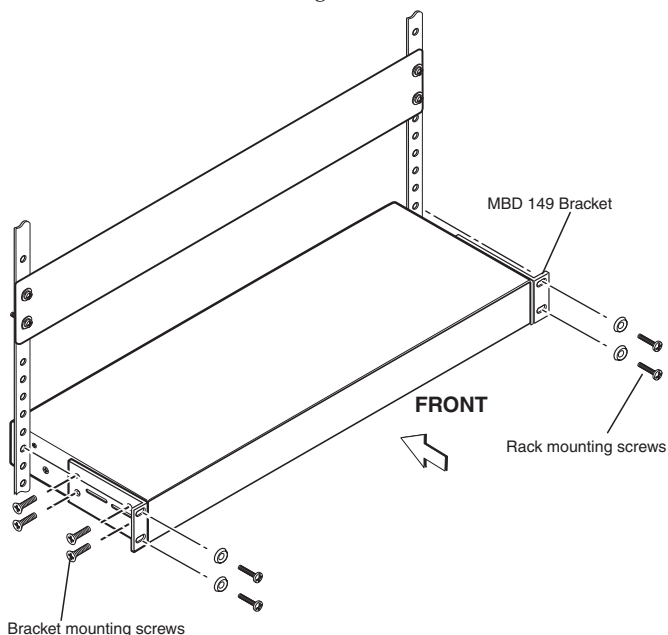
overloading might have on overcurrent protection and supply wiring. Give appropriate consideration to the equipment nameplate ratings when addressing this concern.

5. **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

### Rack mounting procedures

The units can be rack mounted, using the MBD 149 mounting kit (part #70-077-03) provided with the unit.

1. Remove rubber feet if these have been installed on the bottom of the unit.
2. Secure one bracket to each side of the distribution amplifier with the provided bracket mounting screws (four #8 screws for each bracket — see figure 1 below).



**Figure 2-1 — Installing a full rack unit on a shelf rack**

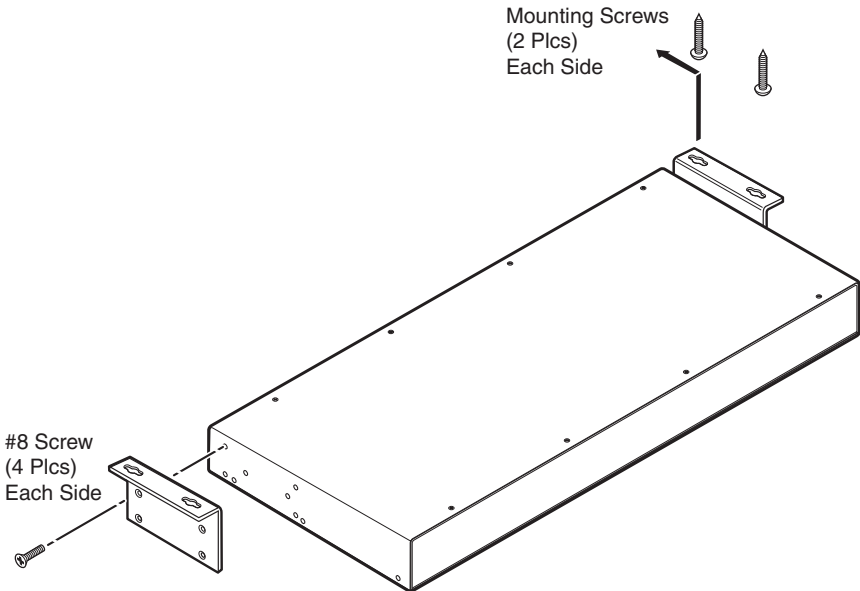
3. Align the holes in the mounting brackets with holes in the rack and secure the unit with brackets to the rack using the four rack-mounting screws and four washers provided with the mounting kit.

# Installation and Operation, cont'd

## Under-desk mounting

Mount the unit under a desk or podium using the optional Extron MBU 149 kit (part #70-222-01) as follows:

1. Remove rubber feet if these have been installed on the bottom of the unit.
2. Using the provided #8 screws, attach the mounting brackets to the distribution amplifier (four screws on each side, as shown below in figure 2).



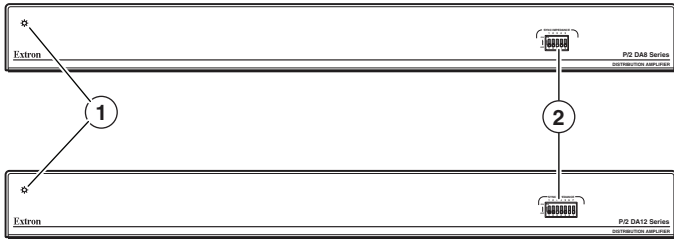
**Figure 2-2 — Under-desk mounting the interface**

3. Hold the unit, with the brackets attached, against the underside of the table or other furniture. Mark the location of the holes in the bracket on the mounting surface.
4. Drill four pilot holes, each  $3/32$ " (2 mm) in diameter by  $1/4$ " deep (6.3 mm) deep, into the mounting surface at the marked screw locations.
5. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than  $1/4$ " (6.3 mm) of the screw head protrudes.
6. Guide the slots in the mounting brackets over the protruding screw heads.
7. Slide the unit forward or backward by  $3/8$ " (4.7 mm) so that the brackets are supported by the screws. Tighten all four screws to secure the unit in place.



## Front Panel Features

The front panels in the figure below show the P/2 DA8 series (upper panel) and P/2 DA12 (lower panel).



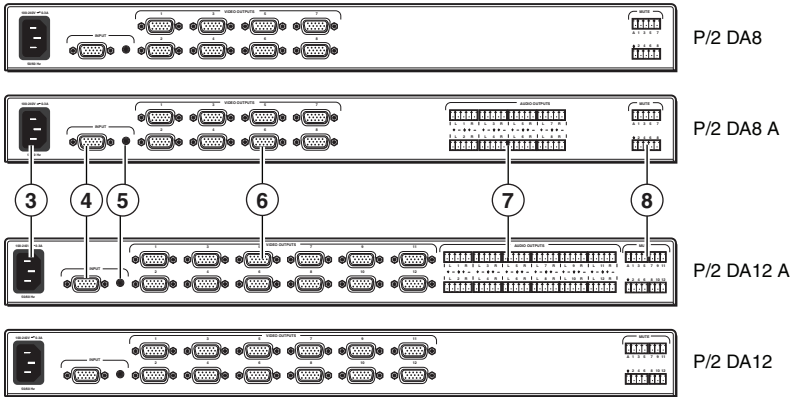
**Figure 2-3 — Front panel features**

- ① **Power LED** — indicates power and input signal status. When the unit is receiving power, the LED is illuminated orange/amber. When the unit is receiving both power and an input signal, the LED is illuminated green.
- ② **Sync Impedance Switches** — are DIP switches, which are used to select the sync impedance on the input and outputs. (See page 2-8.)



## Rear Panel Features

All power, input and output connections are located on the rear panels of all models, as shown in the figure below.



**Figure 2-4 — Rear panel features**

- ③ **AC power connection** — Use the provided IEC connector to connect the unit to a convenient power socket. The internal power supply will support 100-240 VAC, 50-60 Hz.
- ④ **Video input** — One female DB-15 connector is used for video input. Acceptable input formats include: RGBHV, RGBS, RGSB, RsGsBs, YUV (tri-level and bi-level sync), S-video, and composite video. (See page 2-9.)
- ⑤ **Audio input (P/2 DA8 A and P/2 DA12 A models only)** — One female 3.5 mm TRS connector accepts unbalanced audio input. (See page 2-10.)
- ⑥ **Video outputs** — Up to eight (P/2 DA8 series) or twelve (P/2 DA12 series) outputs can be connected using female DB-15 connectors. The output signal format follows that of the input. (See page 2-9.)

**NOTE** ID bits on pins 4, 11, 12, and 15 are routed to Output 1.

- ⑦ **Audio outputs (P/2 DA8 A and P/2 DA12 A models only)** — Up to eight (P/2 DA8 A) or twelve (P/2 DA12 A) outputs can be connected using 3.5 mm 5 pole captive screw connectors. Outputs can be balanced or unbalanced. (See page 2-10.)
- ⑧ **Mute controls** — On P/2 DA 8 models, two 3.5 mm, 5-pole captive screw connectors will be used to mute video and audio from specific or all outputs. On P/2 DA12 models, two 3.5 mm, 4 pole and two 3.5 mm, 3 pole captive screw connectors will be used. (See page 2-11.)

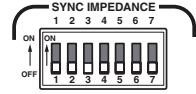
# Installation and Operation, cont'd

## Operation

After the distribution amplifier and its connected devices are powered up, the system is fully operational. If any problems occur, ensure that the cables are properly routed and connected.

### Sync impedance switches

To solve laptop compatibility issues on the video input, or reflection problems on the video output, use these dip switches to correct for sync impedance mismatches.



**Switch 1 (sync input impedance)** — The default setting is OFF (510 ohms). If the image from the laptop is unstable, slide the DIP switch ON (10k ohms).

**Switches 2-7 (sync output impedance)** — Each of these switches controls a pair of outputs simultaneously (see table below). The default setting is OFF (50 ohms). If the front LED is green and all the input and output cables are connected correctly, but there is no image on the display, slide the switch to ON (75 ohms).

| Switch | Function            | Sync Impedance (ohms) |     |
|--------|---------------------|-----------------------|-----|
|        |                     | On                    | Off |
| 1      | Input sync          | 10,000                | 510 |
| 2      | Output 1 & 2 sync   | 75                    | 50  |
| 3      | Output 3 & 4 sync   | 75                    | 50  |
| 4      | Output 5 & 6 sync   | 75                    | 50  |
| 5      | Output 7 & 8 sync   | 75                    | 50  |
| 6      | Output 9 & 10 sync  | 75                    | 50  |
| 7      | Output 11 & 12 sync | 75                    | 50  |

**NOTE** Switches 6 and 7 are only available on P/2 DA12 models.

## Video Input and Output Connections

All models are able to accept RGBHV, RGBS, RGsB, RsGsBs, YUV (tri-level and bi-level sync), S-video and composite video, and resolutions from VGA (640 x 480) to QXGA (2048 x 1536). The signal is distributed without modification: the output format follows the input format.

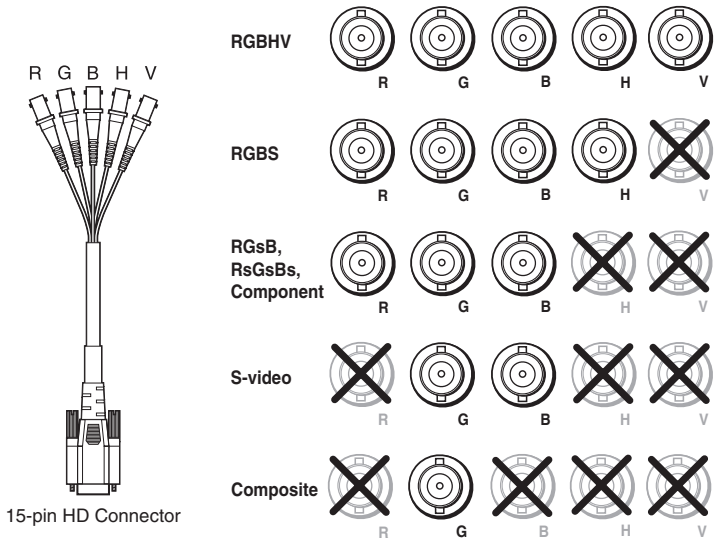
To make input and output connections with other devices, follow these instructions:

1. Turn off the power to the distribution amplifier and the video source.
2. Connect the video source to the 15-pin female HD input socket on the rear panel of the distribution amplifier.
3. Connect the display devices to the 15-pin female HD output sockets on the rear panel of the distribution amplifier.

**NOTE** ID bits on pins 4, 11, 12, and 15 are routed to Output 1.

**NOTE** For optimal performance, all display devices should have similar resolution capabilities.

**NOTE** For sources and displays that require different connectors, use an HD adapter cable, such as the Extron SY BNCM series (#26-533-xx; see the figure below, at left). The BNC connectors used for different signal types are shown in the figure below, at right.

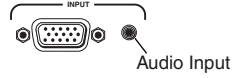


**Figure 2-5 — Video Connections**

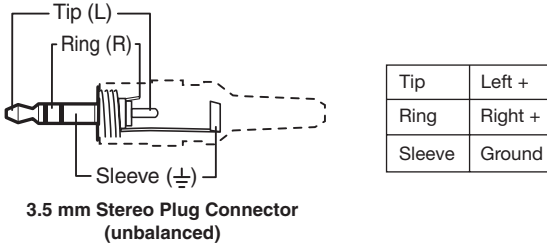
# Installation and Operation, cont'd

## Audio input

For models P/2 DA8 A and P/2 DA12 A, use a female 3.5 mm mini Tip Ring Sleeve (TRS) connector to provide an unbalanced audio input. Switch off power to the distribution amplifier and audio source. Connect the audio source to the audio input socket on the rear panel of the distribution amplifier.



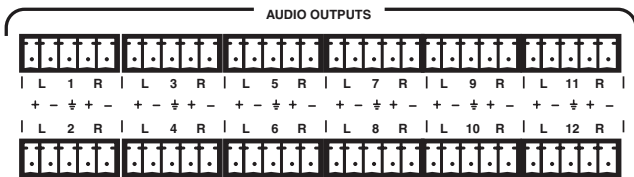
Wiring for the TRS connector is shown in the figure below.



**Figure 2-6 — Audio input**

## Audio output

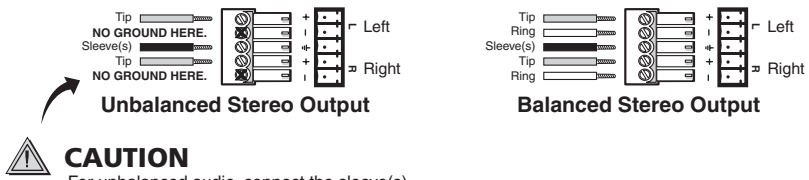
The P/2 DA8 A (eight outputs) and P/2 DA12 A (twelve outputs) use 3.5 mm, 5-pole, captive screw connectors for audio outputs as shown in figure 2-7.



**Figure 2-7 — Audio output connections**

The audio outputs can be balanced or unbalanced depending on the wiring (see figure 2-8 on the next page). The length of exposed wires in the captive screw connector is critical (see the note and caution on the next page).

**NOTE** *Balanced output wiring produces a +6 dB gain.  
Unbalanced output wiring produces 0 dB gain.*

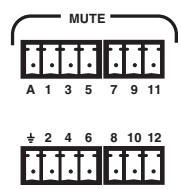


**CAUTION**  
 For unbalanced audio, connect the sleeve(s) to the center contact ground. **DO NOT** connect the sleeve(s) to the negative (-) contacts.

**Figure 2-8 — Audio output wiring**

## Mute Control

The mute control provides a way to mute individual outputs, or all outputs at once. Audio and video for each output is muted simultaneously.



Each output is assigned to a pin on the captive screw connector. To mute any output, short its pin to the ground pin ( $\pm$ ). Multiple outputs can be shorted at the same time. To mute all outputs at once, short pin A (all) to the ground pin.

The P/2 DA8 A model uses two 3.5 mm, 5-pole, captive screw connectors. The P/2 DA12 A model (shown above) uses two 3.5 mm 4-pole connectors and two 3.5 mm 3-pole connectors. For connections to captive screw receptacles, the length of the exposed wires is critical.

- NOTE** *The ideal length of stripped wire is 3/16" (5 mm):*
- If the stripped section of wire is longer than 3/16", the exposed wires may touch, causing a short circuit between them.*
  - If the stripped section of wire is shorter than 3/16", the wires can be easily pulled out even if tightly fastened by the captive screws.*

**CAUTION** *Do not tin the wires. Tinned wire does not hold its shape and can become loose over time.*

## Troubleshooting

After input and display devices are connected to the distribution amplifier and all units are powered up, the system is fully operational. If any problems occur, ensure that the cables are properly routed and connected. Some common problems and diagnostic checks are shown below:

If **the LED light on the front panel is not on**, the distribution amplifier is not receiving power. Ensure that the electric outlet is functional and that the power cord is correctly connected (see [page 2-7](#)).

If **there is no image on the display device**, check that there is an input signal. If the LED light is amber, the power is on but the distribution amplifier is not receiving an input signal. Verify that the cables are correctly connected from the input device and that the input device is switched on (see [pages 2-9 and 2-10](#)).

If the front LED is green but there is still **no output signal**:

- Check that the cables to the output device are connected correctly (see [pages 2-9 and 2-10](#)).
- Make sure that the output for that channel has not been muted (see [page 2-11](#)).
- Change the sync impedance of the output to 75 ohms on the front panel (see [page 2-8](#)).

If the source is a **laptop computer, which is providing an unstable output image**, ensure sync impedance switch number 1 (input sync) is in the ON position (see [page 2-8](#)).

If **output 1 supports an image but other display devices do not**, ensure that the resolution capabilities of the display device on output 1 does not exceed the resolution capabilities of output devices on the other channels. For optimal performance, all display devices should have similar resolution capabilities (see [page 2-9](#)).



## P/2 DA8 and P/2 DA12 Series

# A

# Appendix A

## Reference Information

Specifications

Included Parts

Accessories

# Reference Information

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## Specifications

### Video

|                |                 |
|----------------|-----------------|
| Gain .....     | Unity           |
| Bandwidth..... | 350 MHz (-3 dB) |

### Video Input

|                             |  |
|-----------------------------|--|
| Number/signal type.....     | 1 VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV component video, S-video, composite video   |
| Connectors .....            | (1) 15-pin HD female (optional Mac/VGA adapters are available)   |
| Nominal level .....         | 1.0 Vp-p for Y of component video and S-video, and for composite video<br>0.7 Vp-p for RGB and for R-Y and B-Y of component video<br>0.3 Vp-p for C of S-video |
| Minimum/maximum levels..... | Analog: 0.3 V to 1.5 Vp-p with no offset at unity gain   |
| Impedance.....              | 75 ohms  |
| Horizontal frequency.....   | 15 kHz to 135 kHz  |
| Vertical frequency.....     | 30 Hz to 150 Hz  |
| Return loss.....            | <-40 dB @ 5 MHz  |
| Input coupling .....        | DC   |

### Video Output

|                             |  |
|-----------------------------|--|
| Number/signal type.....     | 8 or 12 (depending on model) RGBHV, RGBS, RGsB, RsGsBs, HDTV component video, S-video, composite video (follows input type)                                  |
| Connectors                  |  |
| P/2 DA8 Series .....        | 8 female 15-pin HD   |
| P/2 DA12 Series .....       | 12 female 15-pin HD  |
| Nominal level .....         | 1 Vp-p for Y of component video and S-video, and for composite video<br>0.7 Vp-p for RGB and for R-Y and B-Y of component video<br>0.3 Vp-p for C of S-video |
| Minimum/maximum levels..... | 0.3 V to 1.5 Vp-p (follows input)  |
| Impedance.....              | 75 ohms  |
| Return loss.....            | <-40 dB at 5 MHz   |
| DC offset.....              | ± 5 mV with input at 0 offset  |



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## Sync

|                              |   |
|------------------------------|---|
| Input type.....              | RGBHV, RGBS, RGsB, RsGsBs; bi-level and tri-level sync  |
| Output type.....             | RGBHV, RGBS, RGsB, RsGsBs; bi-level and tri-level sync (follows input)<br>Tri-level on Y, R-Y, B-Y channels (component video 720p, 1080i, 1080p)<br>Bi-level on Y channel (for all other component video rates) |
| Input level .....            | 2.0 V to 5.0 Vp-p (TTL)   |
| Output level .....           | 0.3 Vp-p for component video (bi-level sync)<br>0.6 Vp-p for component video (tri-level sync)<br>TTL: 5.0 Vp-p, unterminated for RGBHV, RGBS  |
| Input impedance .....        | 10k ohms or 510 ohms (default), selectable  |
| Output impedance .....       | 50 ohms or 75 ohms (default), selectable  |
| Max. propagation delay ..... | 90 ns   |
| Max. rise/fall time .....    | 2 ns  |
| Polarity.....                | Positive or negative (follows input)  |

## Reference Information, cont'd

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### Audio — P/2 DA8 A, P/2 DA12 A

|                                 |   |
|---------------------------------|---|
| Gain .....                      | Unbalanced output: 0 dB;<br>Balanced output: + 6 dB |
| Frequency response .....        | 20 Hz to 20 kHz, $\pm 0.2$ dB                       |
| THD + Noise .....               | 0.03% @ 1 kHz at nominal level                      |
| S/N .....                       | >90 dB at maximum output (unweighted)               |
| Stereo channel separation ..... | >80 dB @ 1Hz  |

### Audio Input — P/2 DA8 A, P/2 DA12 A

|                          |  |
|--------------------------|--|
| Number/signal type ..... | 1 stereo, unbalanced                           |
| Connectors .....         | (1) 3.5 mm mini audio jack (tip, ring, sleeve) |
| Impedance .....          | >10k ohms unbalanced, DC coupled               |
| Nominal level .....      | -10 dBV (316 mVrms)                            |
| Maximum level .....      | +16 dBu, (balanced) at 1% THD + N              |

**NOTE**      $0 \text{ dBu} = 0.775 \text{ Vrms}$ ,  $0 \text{ dBV} = 1 \text{ Vrms}$ ,  $0 \text{ dBV} \approx 2 \text{ dBu}$

### Audio Output — P/2 DA8 A, P/2 DA12 A

|                               |   |
|-------------------------------|---|
| Number/signal type .....      | 8 or 12 (depending on model) stereo,<br>balanced/unbalanced |
| Connectors                    |   |
| P/2 DA8 A .....               | (8) 3.5 mm captive screw connectors, 5<br>pole              |
| P/2 DA12 A .....              | (12) 3.5 mm captive screw connectors, 5<br>pole             |
| Impedance .....               | 50 ohms unbalanced, 100 ohms balanced                       |
| Gain error .....              | $\pm 0.1$ dB channel to channel                             |
| Maximum level (Hi-Z) .....    | >+28 dBu, balanced, >+20 dBV unbalanced<br>at 1% THD+N      |
| Maximum level (600 ohm) ..... | >+21 dBm, balanced, >+18 dBm<br>unbalanced at 1% THD+N      |

### Control/remote — distribution amplifier

|                                    |  |
|------------------------------------|--|
| Contact closure mute control ..... | (2) 3.5 mm captive screw connectors, 4<br>pole and<br>(2) 3.5 mm captive screw connectors, 3<br>pole |
|------------------------------------|--|

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## Contact closure pin configurations

- P/2 DA8 series..... A = mute all outputs, 1 = mute output 1,  
2 = mute output 2, 3 = mute output 3,...  
8 = mute output 8
- P/2 DA12 series..... A = mute all outputs, 1 = mute output 1,  
2 = mute output 2, 3 = mute output 3,...  
12 = mute output 12

## General

- Power ..... 100 VAC to 240 VAC, 50/60 Hz, 30 watts,  
internal
- Temperature/humidity ..... Storage - 40° to + 158°F (-40° to + 70°C) /  
10% to 90%, noncondensing  
Operating + 32° to + 122°F (0° to + 50°C) /  
10% to 90%, noncondensing
- Cooling ..... Convection, no vents
- Rack mount ..... Yes, with included brackets, MBD 149,  
part # 70-077-03  
Also furniture mountable with optional  
under-desk mounting kit, MBU 149,  
part # 70-222-01
- Enclosure type ..... Metal
- Enclosure dimensions ..... 1.7" H x 17.4" W x 8.5" D (1U high, full  
rack wide)  
4.3 cm H x 44.2 cm W x 21.6 cm D  
(Depth excludes connectors.)
- Product weight ..... 6 lbs (2.7 kg)
- Shipping weight ..... 9 lbs (5 kg)
- DIM weight
- USA/Canada ..... 10 lbs (5 kg)
- International..... 11 lbs (5 kg)
- Vibration..... ISTA 1A in carton (International Safe  
Transit Association)
- Listings..... UL, CUL
- Compliances..... CE, FCC Class A, VCCI, AS/NZS, ICES
- MTBF..... 30,000 hours
- Warranty ..... 3 years parts and labor

**NOTE**     All nominal levels are at  $\pm 10\%$

**NOTE**     Specifications are liable to change without notice

## Reference Information, cont'd

### Included Parts

| Included Parts  | Part number |
|---|-------------|
| P/2 DA8   | 60-891-02   |
| or P/2 DA8 A  | 60-891-01   |
| or P/2 DA12   | 60-893-02   |
| or P/2 DA12 A   | 60-893-01   |
| IEC Power Cord  |             |
| Tweaker   |             |
| Rubber Feet (4)   |             |
| 3.5 mm, 3-pole captive screw connector w/tail (blue) — Audio models only (2)                              | 100-456-01  |
| 3.5 mm, 4-pole captive screw connector w/tail (blue) — Audio models only (2)                              |             |
| 3.5 mm, 5-pole captive screw connector w/tail (blue) — Audio models only (8 for P/2 DA8; 12 for P/2 DA12) | 100-457-01  |
| Zip Tie, clear. For captive screw connectors — Audio models only (12 for P/2 DA8; 16 for P/2 DA12)        |             |
| MBD 149, 1U full rack width, rack mount kit   | 70-077-03   |
| User Manual (on CD)   |             |

### Optional accessories and cables

| Accessories  | Part number |
|--|-------------|
| MBU 149, 1U full rack under-desk mounting kit for four-piece enclosure | 70-222-01   |
| VGA M-M, male to male VGA cables                                       | 26-238-xx   |
| VGA-A M-M MD, male to male VGA cables with audio cables                | 26-490-xx   |
| VGAP M-M MD, male to male plenum VGA cables                            | 26-439-xx   |
| MVGA M-M, male to male micro VGA cables                                | 26-567-xx   |
| MVGA-A M-M, male to male micro VGA cables with audio cables            | 26-566-xx   |
| SYM BNCM, 15-pin HD male to BNC male Mini High Resolution (MHR) cables | 26-533-xx   |

| <b>Accessories</b>   | <b>Part number</b>        |
|--|---------------------------|
| SY VGAM-RGBHVF, VGA male to BNC female molded adapter, various lengths             | 26-397-01                 |
| SY VGAM-RGBHVF, VGA male to BNC female pig tail adapter, various lengths           | 26-604-02                 |
| MHR-5 BNC Series, BNC male to male 5 conductor MHR cables, various lengths         | 26-260-xx                 |
| MHR-5P BNC Series, BNC male to male 5 conductor plenum MHR cables, various lengths | 26-378-xx                 |
| M59-5 BNC Series, BNC male to male 5 conductor M59 flex cables, various lengths    | 26-499-xx                 |
| RG6-5 BNC Series, BNC male to male 5 conductor RG6 cables, various lengths         | 26-369-xx                 |
| MHR-4 BNC Series, BNC male to male 4 conductor MHR cables, various lengths         | 26-210-xx                 |
| RG6-4 BNC Series, BNC male to male 4 conductor RG6 cables, various lengths         | 26-368-xx                 |
| RG6 BNC Series, BNC male to male single conductor cable, various lengths           | 26-383-xx                 |
| MHR-2 SVM-M, male to male 4-pin mini DIN S-video cables, various lengths           | 26-316-xx                 |
| MHR-2P SVM-M, male to male 4-pin mini DIN S-video cables, plenum, various lengths  | 26-522-xx                 |
| MLSC 406/506/51P SV, S-video mini DIN to BNC (Y/C) cable, various lengths          | 26-628-xx                 |
| MSR 6, Mini stereo plug to RCA female audio adapter                                | 26-592-01                 |
| CSM 6, Captive screw to female 3.5 mm mini stereo jack adapter                     | 26-620-01                 |
| CSR 6, Captive screw to RCA female audio adapter                                   | 26-575-01                 |
| 3.5 mm stereo audio male to (2) RCA male stereo audio adapter                      | IN9107                    |
| STP Series, 20/22 AWG single/dual, serial control/audio cable (bulk 1000')         | 26-156-03<br>to 26-163-03 |
| CTL Series, comm-link bulk cable   | 26-148-xx                 |

## **Reference Information, cont'd**

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## FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

## Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,  
and Central America:**

Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805, USA

**Europe, Africa, and the Middle East:**

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

**Asia:**

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

**Japan:**

Extron Electronics, Japan  
Kyodo Building  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.



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